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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,973	03/15/2001	Robert Joseph Bestgen	ROC920000272US1	7443

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EXAMINER

RIMELL, SAMUEL G

ART UNIT	PAPER NUMBER
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2165

DATE MAILED: 11/26/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/810,973

Applicant(s)

BESTGEN ET AL.

Examiner

Sam Rimell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-26 is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11,13-21 and 27-38 is/are rejected.
- 7) ☒ Claim(s) 10 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Preliminary Notes: (1) The final rejection of 6/29/04 is hereby vacated. The following is new office action on the merits for pending claims 1 and 3-38. This office action is made non-final.

(2) Examiner notes that claims 28-38 are indicated as containing allowable subject matter, due to their dependency on claim 26, which is allowable. However, claims 28-38 do not appear to have been intended to depend from claim 26, but rather claim 27. Applicant is advised that subsequent amendments to correct the dependency may change which claims are indicated as containing allowable subject matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 11, 16, 18-21 and 28-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5: The phrases “the magnitude”, “the variance range”, “the confidence” and “the penalty” lack antecedent basis.

Claim 11: All of the limitations of this claim are redundant with limitations of claim 7 in its chain of dependency.

Claim 16: The phrase “the other N” dimensions” lacks antecedent basis.

Claim 18: The phrases “the magnitude”, “the variance range”, “the confidence” and “the penalty” all lack antecedent basis.

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Claim 19: Reference is made to generation of a “fourth vector quantity” without ever generating a third vector quantity in the chain of dependency. In the second to last line, “the third quantity” lacks antecedent basis.

Claim 20: The reference to “M” dimensions lacks antecedent basis. In addition, the recitations of magnitude, variance range, confidence and penalty and redundant with previously recited features in the chain of dependency.

Claim 21: The phrases “the magnitude”, “the variance range”, “the confidence” and “the penalty” lack antecedent basis.

Claim 28-30: The phrase “the signal bearing medium” lacks antecedent basis.

Claim 31: The phrase “the signal bearing medium” lacks antecedent basis. The phrases “the magnitude”, “the variance range”, “the confidence” and “the penalty” all lack antecedent basis.

Claim 32: The phrase “the signal bearing medium” lacks antecedent basis.

Claim 33: The phrase “the second vector quantity” lacks antecedent basis.

Claim 34: The phrase “the signal bearing medium” lacks antecedent basis.

Claim 35: The phrase “the selected execution plan” lacks antecedent basis. Additionally, no claims within the chain of dependency actually require the step of selecting a plan.

Claim 36: Reference is made in claim 36 to “a selected plan”, whereas none of the steps in the chain of dependency recite the actual step of selecting a plan.

Claim 37: The entire claim is redundant with claim 33 from which it depends.

Claim 38: The entire claim is redundant with claim 31 in the chain of dependency.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-4, 6-9, 11, 13, 15 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Farrar et al. (U.S. Patent 6,330,552).

Claim 1: Farrar et al. first discloses the concept of receiving a query (col. 2, line 65) and preparing at least a first execution plan for the query (col. 2, lines 66-67 and col. 3, line 14). Each execution plan is associated with a cost (col. 3, lines 20-22) where the costs are described in terms of vectors (col. 5, lines 1-21). Certain vectors used in the determination have as many as 10 dimensions (col. 5, lines 35-67). Determination of whether the execution plan should be executed is based on which plan is least expensive for a certain performance goal (col. 5, lines 16-21).

Claim 3: Each query plan is described by at least one vector having at least two dimensions (col. 5, lines 35-67).

Claim 4: One of the 10 vector dimensions recited by Farrar et al. is a count of CPU instructions, which is readable as a magnitude. In its broadest sense, a magnitude may be any numerical value.

Claim 6: Col. 10, lines 38-39 describe the formulation of two vectors which are compared as part of the cost determination. Each of the two vectors has at least six of the 10 dimensions (see Table 2) and probably has all 10 of the dimensions if the phrase "All other

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components” refers to the remaining four dimensions in the list of 10 dimensions provided at col. 5, lines 35-67.

Claim 7: One of the dimensions in Table 2 is a count of CPU instructions (also see col. 5, lines 35-39). This count is readable as a magnitude, since any numerical value could be read as a magnitude.

Claim 8: Col. 10, lines 37-63 describe the creation of two vectors that correspond to two query plans. The vectors are compared to determine minimum elapsed time. The determination of minimum elapsed time is used in the overall determination of query plan cost. The lowest cost plan for a given performance objective will control the selection of a query plan (col. 5, lines 16-21).

Claim 9: The acceptance criteria is the lowest cost for given performance objectives. Query plans which meet the acceptance criteria are those which are selected.

Claim 11: See remarks for claim 7.

Claim 13: In Farrar et al., the system first receives a query to process (col. 2, line 65). A first vector quantity is calculated (col. 5, lines 32-67) having $X = (10 \text{ dimensions})$. As described at col. 10, lines 38-62 a second vector quantity is developed having $Y = (\text{at least } 6) \text{ dimensions}$. The first and second vectors are compared to determine a minimum cost (minimum elapsed running time) in comparing the two vectors. The calculated cost is the minimum cost which is determined.

Claim 15: A number of different vectors representing total cost consumption, such as “TC_m” (col. 14, line 10 and col. 14, lines 25-26) are readable as third vectors and will control which query plans are selected based on calculation of total minimum cost for each plan.

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Claim 27: See remarks for claim 1.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 14, 16, 17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Simmen .

Claim 13: Paragraph 0030 describes the input of a query, which is used to develop multiple query execution plans (QEPs). In order to evaluate each QEP, an adjustment vector is created having a series of adjustment values (paragraph 0122). Each value in the adjustment vector is readable as a vector quantity. Each vector quantity has two dimensions because the adjustment value is the result of a ratio of two variables (dependent selectivity and independent selectivity). The adjustment factors are used in the determination of cardinality, which in turn is used to determine the cost of a given execution plan (paragraph 0011, lines 1-8).

Claim 14: Each of the vector quantities in the adjustment vector are ratios of selectivity.

Claim 16: Query execution plans are selected based upon their relative costs (paragraph 0011, lines 1-3) and the cost of each plan is evaluated by utilizing adjustment factors, which are the claimed vector quantities.

Claim 17: The adjustment values in the adjustment vector are numerical values, and are thus readable as magnitudes. Any numerical value is considered readable as a magnitude.

Claim 19: As stated in paragraph (0030-0031) multiple query execution plans are generated for each query. The costs for each of the query plans are determined (paragraph 0011,

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lines 1-3). The adjustment factors loaded into the adjustment vectors are utilized in determining the respective costs for each query execution plan.

Claims 5, 18, 20, 21 and 28-38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 10 and 12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22-26 are allowed.

Any inquiry concerning this communication should be directed to Sam Rimell at telephone number (571) 272-4084.



Sam Rimell
Primary Examiner
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